

DEPARTMENT OF TRANSPORTATION
ENGINEERING SERVICE CENTER
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METHOD OF TEST FOR SWELL OF BITUMINOUS MIXTURES

CAUTION: Prior to handling test materials, performing equipment setups, and/or conducting this method, testers are required to read "**SAFETY AND HEALTH**" in Section I of this method. It is the responsibility of the user of this method to consult and use departmental safety and health practices and determine the applicability of regulatory limitations before any testing is performed.

A. SCOPE

The swell test is an index of the resistance of compacted bituminous mixtures to softening and disintegration in the presence of water.

B. APPARATUS (see Figure 1)

1. Perforated bronze disk, 98 ± 2 mm in diameter, and 4 ± 2 mm thick with adjustable stem.
2. Dial indicator gage, with reading accuracy to 0.01 mm, mounted on a tripod.
3. Aluminum pan, having a nominal diameter of 200 mm by 64 mm deep.

C. TEST RECORD FORM

Use work card, Form TL-302, for recording test data.

D. MIXING AND FABRICATION

Mix and fabricate the specimen as described in California Test 304.

E. TEST PROCEDURE

1. Place the mold containing the test specimen in a pan.
2. After the specimen has been allowed to cool for a minimum 1 h after compaction, place the perforated disk on the surface of the specimen.

Make sure there are no loose particles on the surface of the specimen.

3. Place the dial assembly in position on top of the mold. The dial stem must rest on the adjustable stem of the perforated disk.
4. Turn the adjustable stem of the perforated disk until the dial indicator is on 0.00 mm.
5. Remove the dial assembly.
6. Pour $500 \pm \text{mL}$ of water at $25 \pm 2^\circ\text{C}$ on the specimen in the mold and allow to stand undisturbed at room temperature for $24 \text{ h} \pm 30 \text{ min}$.
7. Place the dial assembly in position on top the of mold, read the indicator dial, and record the value.

F. PRECAUTIONS

1. There should be no loose particles on the surface of the specimen when the perforated disk is placed on it.
2. Make the dial settings and readings carefully and accurately.
3. There should be no burrs or irregularities on the tripod, tip of the stem or mold.
4. Once the adjustable stem is set to provide a zero reference, do not change this position.

H. REPORTING OF RESULTS

Report the vertical swell, as measured using the dial indicator in hundredths of a millimeter.

Report results on Test Report Form TL-302.

I. SAFETY AND HEALTH

Prior to handling, testing or disposing of any waste materials, testers are required to read: Part A (Section 5.0), Part B (Sections: 5.0, 6.0 and 10.0) and Part C (Section 1.0) of Caltrans Laboratory Safety Manual. Users of this method do so at their own risk.

REFERENCES:

California Test 304

End of Text (California Test 305 contains 3 pages)

SWELL TEST APPARATUS

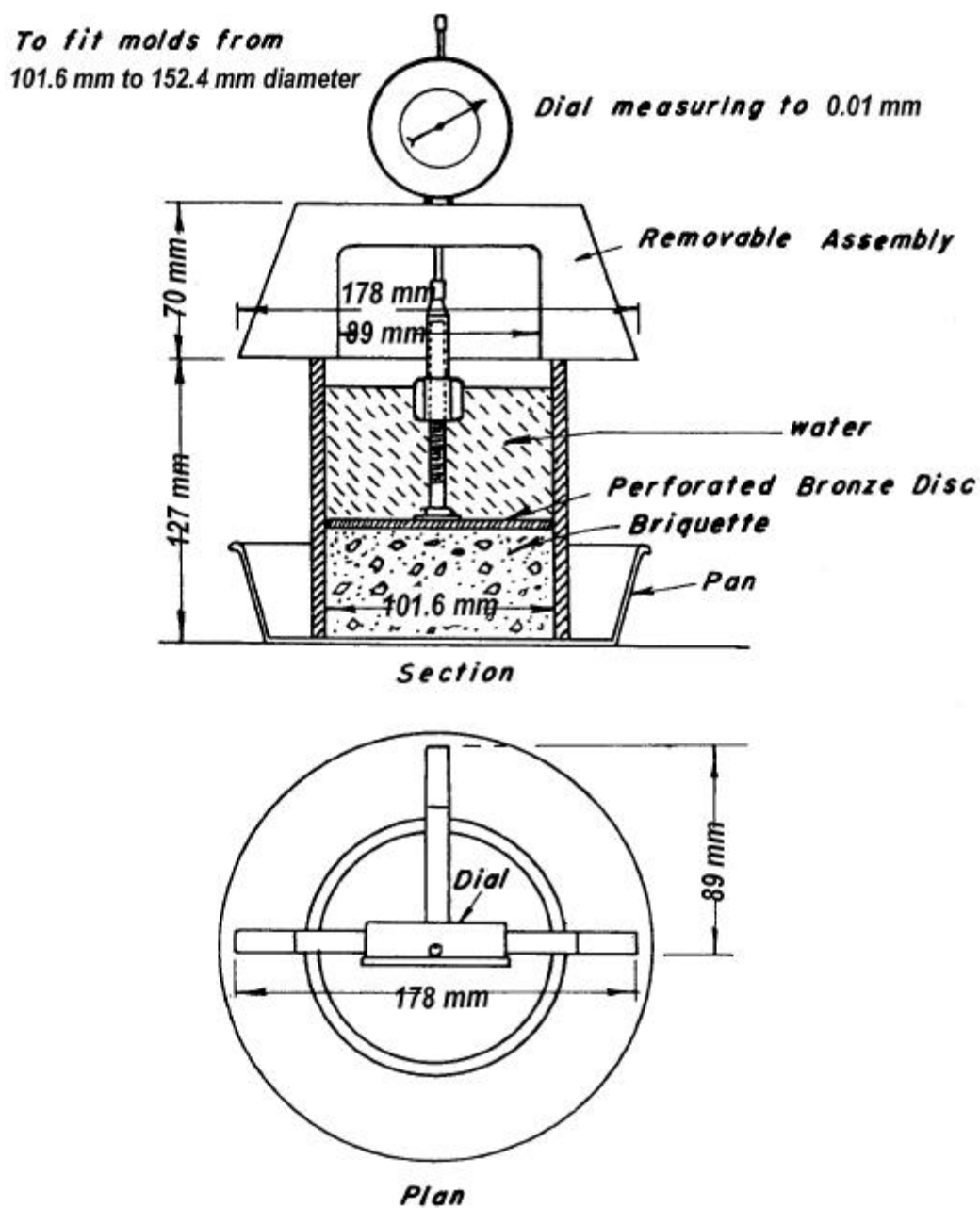


FIGURE 1